

## PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year)  
 10 April 2001 (10.04.01)

International application No.  
 PCT/GB00/03175

Applicant's or agent's file reference  
 IS/BP5874565

International filing date (day/month/year)  
 17 August 2000 (17.08.00)

Priority date (day/month/year)  
 17 August 1999 (17.08.99)

## Applicant

NEWMAN, Paul, Bernard

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 16 March 2001 (16.03.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

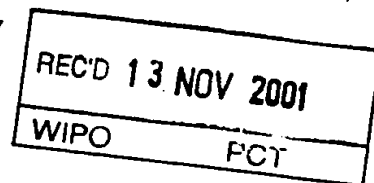
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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference IS/BP5874565	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/03175	International filing date (day/month/year) 17/08/2000	Priority date (day/month/year) 17/08/1999
International Patent Classification (IPC) or national classification and IPC A23L3/00		
Applicant NEWMAN, Paul Bernard		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
  - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  16/03/2001	Date of completion of this report  09.11.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 eprmu d Fax: +49 89 2399 - 4465	Authorized officer  Georgopoulos, N  Telephone No. +49 89 2399 2634 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB00/03175

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-14 as originally filed

**Claims, No.:**

1-15 with telefax of 26/10/2001

**Drawings, sheets:**

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

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☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

**see separate sheet**

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims 1-15
	No: Claims
Inventive step (IS)	Yes: Claims
	No: Claims 1-15
Industrial applicability (IA)	Yes: Claims 1-15
	No: Claims

2. Citations and explanations  
**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

**Item V**

- 1 The amendments filed with the telefax of 26.10.01 do not meet the requirements of Art.34 (2) (b) PCT, as they introduce subject-matter which goes beyond the content of the application as originally filed. The amendments concerned are the following:

1.1 The introduction of the expression "which comprises a sprayer and is" in present claim 1

The description as originally filed discloses (see page 4, lines 6 to 8) that "irradiation is preceded by an operation intended to remove such debris ("gross debris, such as particles of food"; see page 4, lines 5 to 6 of the description as originally filed), for example by directing jets or sprays of suitable fluid onto the surface". This passage does not disclose that present invention's conveying arrangement "*comprises a sprayer*" as in present claim 1.

Thus, said amendment leads to a specific disclosure not contained in the originally filed application documents.

1.2 The omission of the expression "in which the first cleaner includes means for applying a fluid" between the wording "claim 9" and the word "which" in present claim 10

Originally filed claim 10 discloses that in present invention's decontamination arrangement "the first cleaner includes means for applying a fluid". Therefore, said omission leads to a broadening of the scope of the invention as originally filed.

- 1.3 From the above, it can be seen that the examination of the application with respect to novelty, inventive step and industrial applicability will be carried out on the basis of the originally filed application documents.

- 2 Reference is made to the following documents:

D1: FR-A-2 744 920

D2: US-A-5 355 992

D3: WO-A-94 24875

- 3 The subject-matter of present independent claims 1, 8, 9, 11 and 12 is new (Art.33

(2) PCT).

- 3.1 D1 discloses an apparatus designed for the sterilization and drying of carpets, wherein said apparatus comprises a brush (5) and germicidal UV-lamps (4) (see page 2, lines 5 to 8, figures 1 to 3 and claims 1, 2 and 4 of D1). A UV-cleaner being downstream of the first cleaner as in present claims 1, 8, 9 or 11 or the sequence of process steps as in present claim 12 (i.e. first the mechanical removal of debris and then the UV-irradiation), are not disclosed in said document.

D2 discloses an apparatus for cleaning particulate material including dust from an elongated flexible belt, wherein said apparatus comprises means for advancing said belt, a scraper blade, means for directing liquid against the material-supporting surface of the belt and nozzle means for discharging said liquid against a liquid-deflecting surface to be deflected against said material-supporting surface (see claims 1 to 4, 10 and figure 2 of D2). A UV-irradiation cleaner as in present claims 1, 8, 9, 11 and 12, is not disclosed in this document.

D3 discloses a method of sterilizing a substrate comprising conveying the substrate in a non-wrapped state into a treatment cavity and subjecting its entire surface to UV-irradiation (see claims 1, 2, 6, 8 and 9 of D3). Furthermore, it discloses a sterilizing unit for the sterilization of sausages, comprising a tunnel or chamber having a plurality of UV sources (see claims 15 and 17 of D3). A cleaner for the mechanical removal of debris from a conveying surface as in present claims 1, 8, 9, 11 or the process step of mechanically removing debris from a conveying surface as in present claim 12, are not disclosed in said document.

- 3.2 Therefore, the subject-matter of present independent claims 1, 8, 9, 11 and 12 is not anticipated by any one of the documents D1, D2 and D3.

- 4 The subject-matter of present independent claims 1, 8, 9, 11 and 12 does not involve an inventive step (Art.33 (3) PCT), for the following reasons:

4.1 Present claims 1, 9 and 11

D1 is considered as the closest prior art document. The problem to be solved by the present invention may, therefore, be seen in as how to provide an alternative to the

decontamination apparatus and method of D1 (see page 4, line 28 to page 5, line 8 of the present description and page 1, lines 19 to 21 of D1). The differences between present invention's apparatus and method and that of D1 reside in the fact that the former apparatus has the UV-cleaner downstream of the first cleaner and that in the former method, the UV-cleaner is used downstream of the first cleaner (see point 3.1 above). Said differences seem to be a matter of trivial design, as it can be seen in the present description (see page 4, line 28 to page 5, line 8 thereof) that it is not the configuration in the combination (mechanical cleaner + UV-cleaner), but the combination *per se* ("**combined effect**") that brings about the desired results (i.e. cleanliness and sterility of the conveying surface). Therefore, the subject-matter of present claims 1, 9 and 11 would be obvious to the person skilled in the art having regard to D1.

#### 4.2 Present claim 8

The problem to be solved by the present invention over D1 (closest prior art document) can be regarded as how to provide a food processing apparatus as an alternative to the apparatus of D1 which is designed for the sterilization and drying of carpets (see page 4, line 28 to page 5, line 8 of the present description and page 1, lines 19 to 21 of D1). By combining D1 with D3 (it discloses a food processing apparatus and, therefore, **it adds** (contrary to applicant's argumentation in the telefax of 26.10.01) **exactly the technical feature which differentiates present invention's apparatus from that of D1**; see claims 15 and 17 of D3) and bearing in mind that it is not the configuration in the combination (mechanical cleaner + UV-cleaner), but the combination *per se* that renders the conveying surface clean and sterile (see also point 4.1 above), the person skilled in the art would arrive at the claimed apparatus. Thus, the subject-matter of present claim 8 would be obvious to the person skilled in the art with respect to D1 and D3.

#### 4.3 Present claim 12

D1 is considered as the closest prior art document. The problem to be solved by the present invention may, therefore, be seen in as how to provide an alternative to the method of D1 (see page 4, line 28 to page 5, line 8 of the present description and page 1, lines 19 to 21 of D1).

The difference between present invention's method and that of D1 resides in the fact that the former has a specific sequence of process steps (i.e. first the mechanical

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EXAMINATION REPORT - SEPARATE SHEET**

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removal of debris and then the UV-irradiation). Said difference, however, does not bring about any unexpected effect or advantage (cf. point 4.1 above). Consequently, the subject-matter of present claim 12 would be obvious to the person skilled in the art with respect to D1.

- 5 The subject-matter of present claims 1 to 15 is susceptible of industrial application in the field of food industry (Art.33 (4) PCT).

**Item VII**

- 6 Contrary to the requirements of Rule 5.1 (a) (ii) PCT, the relevant background art disclosed in the documents D1 and D2 is not mentioned in the description, nor are these documents identified therein.
- 7 The expression "which is incorporated herein by reference" on page 1, line 26 of the present description, has not been deleted (cf. the PCT-Guidelines, C-II, 4.18).

CLAIMS:

1. A conveying arrangement including a conveying surface for conveying a substrate, characterised by a decontamination arrangement comprising a first cleaner adapted to mechanically remove debris from the conveying surface and a second cleaner, downstream of the first, for subjecting said surface to ultraviolet irradiation.

2. A conveying arrangement according to claim 1 in which the conveying means is a belt.

3. A conveying arrangement according to claim 1 or 2 in which the first cleaner includes one or more of sprays, brushes and scrapers.

4. A conveying arrangement according to claim 3 in which the first cleaner comprises a rinse/clean unit having means for directing liquid onto the conveying surface and a brush or scraper such as a rotating brush roller for acting on the conveying surface wetted by the liquid.

5. A conveying arrangement according to any one of the preceding claims in which the second cleaner applies UV radiation right across the conveying surface at a power of at least  $2 \text{ W/m}^2$ .

6. A conveying arrangement according to any one of the preceding claims in which said first cleaner and/or said second cleaner acts on the conveying surface at a

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flexure thereof.

7. A conveying arrangement according to any one of the preceding claims comprising a detection unit positioned adjacent the conveying surface downstream of at least the first cleaner, to detect the presence of any residual matter on the conveying surface after the action of said cleaner.

8. Food processing apparatus comprising a conveying arrangement according to any one of claims 1 to 7.

9. A decontamination arrangement comprising first and second cleaners as specified in any one of claims 1 to 7, adapted for fitting to an existing conveying arrangement.

10. A decontamination arrangement according to claim 9 in which the first cleaner includes means for applying a fluid, and the decontamination arrangement includes a liquid containment chamber with entry and exit openings for the conveyor.

11. A method of adapting a conveyor system by adding to it a decontamination arrangement to form a conveyor arrangement as defined in any one of claims 1 to 7.

12. A method of decontaminating a conveying surface of a conveyor, comprising a first step of mechanically removing debris from the conveying surface and a second step of subjecting said surface to ultraviolet

irradiation.

13. A method according to claim 12 in which the first step includes one or more of spraying, brushing and  
5 scraping of the conveying surface.

14. A method according to claim 12 or 13 further comprising monitoring the cleanliness of the conveyor surface downstream of at least the first step.

10 15. A method according to claim 14 comprising modifying, preferably automatically, the first and/or second cleaning steps in dependence on said monitored cleanliness of the conveyor surface.

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>IS/BP5874565</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 00/ 03175</b>	International filing date (day/month/year) <b>17/08/2000</b>	(Earliest) Priority Date (day/month/year) <b>17/08/1999</b>
Applicant  <b>NEWMAN, Paul Bernard</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1  
☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/03175

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A23L3/00 B65G45/10 B65G45/22 B65G45/24 A61L2/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A23L B65G A61L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 744 920 A (MARIE SA ETS) 22 August 1997 (1997-08-22)	9,11-13
Y	page 1, line 10 - line 21 page 2, line 5 - line 8 page 2, line 19 - line 30 figures 1-3	1-5,8,10
Y	US 5 355 992 A (BAIG NAZoor A ET AL) 18 October 1994 (1994-10-18) column 3, line 3 - line 49 figure 2	1-5,8,10
A	WO 94 24875 A (NEWMAN PAUL BERNARD DAVID) 10 November 1994 (1994-11-10) cited in the application page 13, line 24 -page 15, line 6 page 15, line 15 - line 23 figure 3	1-5,8-13
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

11 December 2000

Date of mailing of the international search report

18/12/2000

Name and mailing address of the ISA

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Authorized officer

Papatheofrastou, M

## INTERNATIONAL SEARCH REPORT

International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 44 42 702 A (VEITH HORST K) 5 June 1996 (1996-06-05) column 6, line 61 -column 7, line 28 figures 1,2 ---	1
A	US 5 613 594 A (KOOTSOURLADIS ANTHONY) 25 March 1997 (1997-03-25) column 6, line 10 - line 42 column 6, line 66 -column 7, line 26; figure 7 ---	4
A	DE 38 31 419 A (BOEHNENSIEKER FRANZ) 3 May 1990 (1990-05-03) column 2, line 55 -column 3, line 30 figure 1 ---	6
A	US 5 110 365 A (CARTER HUDSON R) 5 May 1992 (1992-05-05) column 2, line 41 -column 3, line 32 figure 1 -----	7,14,15

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/03175

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
FR 2744920	A	22-08-1997	NONE		
US 5355992	A	18-10-1994	NONE		
WO 9424875	A	10-11-1994	EP	0649283 A	26-04-1995
			US	5597597 A	28-01-1997
DE 4442702	A	05-06-1996	NONE		
US 5613594	A	25-03-1997	CA	2202071 A	20-02-1997
			EP	0784585 A	23-07-1997
			JP	10507436 T	21-07-1998
			WO	9706082 A	20-02-1997
DE 3831419	A	03-05-1990	DE	3828185 A	22-02-1990
			CA	1268462 A	01-05-1990
US 5110365	A	05-05-1992	AU	635166 B	11-03-1993
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			CA	2056778 A	04-06-1992
			DE	4139718 A	04-06-1992
			GB	2250589 A, B	10-06-1992
			JP	2059014 C	10-06-1996
			JP	4294265 A	19-10-1992
			JP	7086485 B	20-09-1995